

WISS - Wireless, Intelligent Sensor System, Phase I

Completed Technology Project (2006 - 2006)



Project Introduction

Low power, robust communications protocols such as IEEE 802.15.4/Zigbee have made the concept of smart sensor networks attractive across many applications. These systems promise portable, networked, wireless, sensor suites capable of monitoring and controlling environments as needed. Theseus Logic and MachineTalker will provide NASA with a rapidly deployable, wireless, intelligent, sensor system based on their proprietary enabling technologies, and their experience in wireless sensor systems for enhanced shipping container security. 1. Communications based on MachineTalkers

REG

that providing self configuring, self-healing ad hoc networks with minimum intervention. 2. Low power radio protocols such as the IEEE 802.15.4/Zigbee standard. Gateways to reach a central monitoring/decision authority. 3. Secure communications with personal identification numbers (PIN) assigned to each sensor node to ensure data security. 4. Signal processing based on clockless logic providing on demand, ultra low power, data driven, processing and low noise/EMI that maintains performance of sensors and on-chip RF/analog circuitry. 5. A Simple Machine Management Protocol

REG

(SMMP

REG

) controlling both sensors and communications. This also manages power consumption of the system. 6. Multi-sensor data fusion to reduce false alarm rates. 7. A modular architecture allowing optimization of the sensor suite, and including features such as GPS location, and biometric identification.



WISS - Wireless, Intelligent Sensor System, Phase I

Table of Contents

Project Introduction	1
Organizational Responsibility	1
Primary U.S. Work Locations and Key Partners	2
Project Management	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Stennis Space Center (SSC)

Responsible Program:

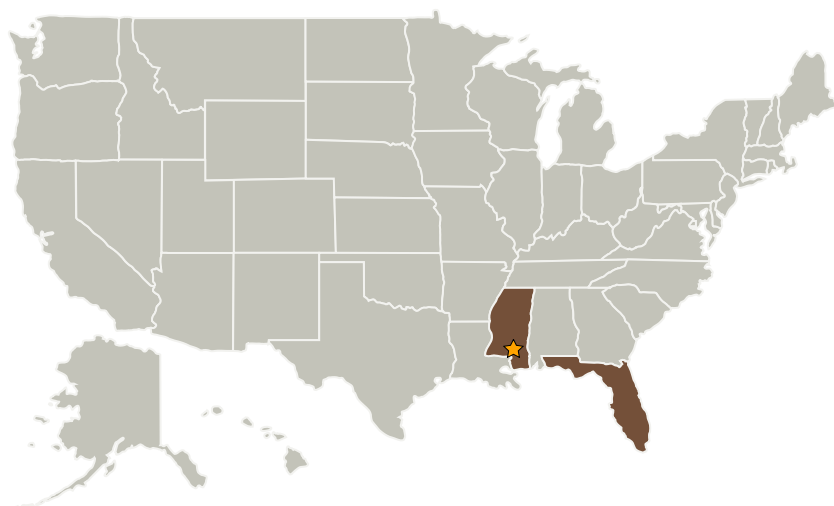
Small Business Innovation Research/Small Business Tech Transfer

WISS - Wireless, Intelligent Sensor System, Phase I

Completed Technology Project (2006 - 2006)



Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Stennis Space Center(SSC)	Lead Organization	NASA Center	Stennis Space Center, Mississippi
Theseus Logic, Inc.	Supporting Organization	Industry	Maitland, Florida

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
 - └ TX12.2 Structures
 - └ TX12.2.3 Reliability and Sustainment

Primary U.S. Work Locations

Florida	Mississippi
---------	-------------